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Foraminiferal biostratigraphy of the Chalk around Codford St Peter, Wilton and Quidhampton

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Foraminiferal biostratigraphy of the Chalk around Codford St Peter, Wilton and Quidhampton

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Summary

Eight samples were examined for calcareous microfauna and Chalks of Cenomanian to Santonian age were recognised.

1 Introduction

Twenty three samples (MPA52063-52085; PMH3662-3684) of Chalk were collected from the Codford St Peter, Wilton and Quidhampton areas of the Salisbury District (Sheet 298) Of these, eight were chosen for analysis at this time. All samples contained foraminifera and ostracods, but as the distribution of the latter requires refinement, the former were used biostratigraphically to date the samples. The biostratigraphy outlined by Wilkinson (2000) is followed here.

2 Sample details, faunas and stratigraphical conclusions

2.1 MPA52064 PMH3663 ST 96594 40156

Gavelinella cenomanica

Plectina cenomana

Plectina mariae

Gavelinella baltica

Flourensina mariae

Hedbergella brittonensis

Hedbergella delrioensis

The presence of *Plectina cenomana, Plectina mariae* and *Flourensina mariae* places the association stratigraphically no lower than foraminiferal zone BGS4i (*inermis* macrofaunal Zone). The incoming of the planktonic species such as *Praeglobotruncana stephensoni* and *Rotalipora cushmani* are important in subdividing the upper part of the Cenomanian, but these species was not observed in the present sample (only long-ranging *Hedbergella brittonensis* and *H. delrioensis* were seen). *Flourensina mariae* is usually rare and patchily distributed in the late Cenomanian, but it is frequent in the present sample. This acme event takes place only in foraminiferal zone BGS5 (UKB6 of HART et al., 1989) and coincides with the *jukes-brownei* macrofaunal zone in the 'middle' Zig Zag Chalk. Abundant, small *Inoceramus* prisms were observed.

2.2 MPA52065 PMH3664 ST 97796 40636

Foraminifera are rare and poorly preserved in the sample. Specimens questionably assigned to *Marginotruncana coronata* were noted and if correctly identified places the assemblage stratigraphically no lower than Foraminiferal one BGS12 (in the middle part of the Lewes Nodular Chalk). Benthonic taxa are extremely rare, which is a characteristic of that part of the succession. However, the assemblage lacks good biostratigraphical markers and more precise conclusions cannot be drawn.

2.3 MPA52068 PMH3667 ST 99440 42395

Lingulogavelinella arnagerensis

Stensioeina polonica

The concurrent range of the two taxa listed here is in foraminiferal subzones BGS 17i and the very base of BGS17ii (although taxa commonly found in BGS17ii were not present in the sample). BGS17i is the more likely age for the assemblage. A position between a point immediately below the Bedwell Columnar Flint Band (and lateral equivalents) and immediately above the Whitaker 3" Flint (and lateral equivalent) is indicated. This places the fauna within the 'middle' to upper (but not uppermost) part of the Seaford Chalk.

2.4 MPA52071 PMH3670 SU 09721 30516

Lingulogavelinella arnagerensis

Stensioeina polonica

The presence of the two species listed above places the sample in a similar stratigraphical position as MPA52068.

2.5 MPA52072 PMH3671 SU 09654 32882

Marginotruncana pseudolinneata

Maginotrunana marginata

Loxostomum eleyi

Archaeoglobigerina cf *bosquensis*

Stensioeina granulata granulata

Reussella kelleri

?*Lingulogavelinella arnagerensis*

The sample yielded a diverse fauna of predominantly long-ranging species. Planktonics were commonly found. *Loxostomum eleyi* places the fauna above the Hope Point Marl and the very rare occurrence of poorly preserved ?*Lingulogavelinella arnagerensis*, if correctly identified, suggests a stratigraphical position no higher than immediately above the Whitaker 3" Flint. Thus a position within the lower (but not basal) and Middle Seaford Chalk is indicated, but a more precise age determination is not possible. Taxa characteristic of the Seaford Chalk above the Barrois Sponge Bed were not present.

2.6 MPA52082 PMH3682 SU 12360 32148

Gavelinella stelligera

Stensioeina exsculpta exsculpta

Reussella szajnochae praecursor

The three foraminifera listed here suggest a position above the Barrois Sponge Bed (uppermost Seaford Chalk) and no higher than the lower part of the Newhaven Chalk (no higher than the basal *pilula* macrofaunal Zone). *Gavelinella cristata*, which is common to abundant above the Peake's Sponge Bed was not found. The best fit for the association is in the upper Seaford Chalk between the Barrois Sponge Bed and the Peake's Sponge Bed.

2.7 MPA52084 PMH3684 SU 13183 31173

Stensioeina polonica

Gavelinella stelligera

Vaginulinopsis scalariformis

The concurrent range of the three species above is within the upper part of BGS17iii to the basal part of BGS18i. A position slightly below Peake's Sponge Bed (and lateral equivalents) is indicated.

2.8 MPA52085 PMH3685 SU 11341 31633

Reussella szajnochae praecursor

Stensioeina exsculpta exsculpta

Archaeoglobigerina bosquensis

Stensioeina polonica

Loxostomum eleyi

The concurrent range of *Reussella szajnochae praecursor* and *Stensioeina polonica* places the assemblage between the Barrois Sponge Bed and Peake's Sponge Bed (and lateral equivalents). *Gavelinella stelligera*, which first appears about midway between the two sponge beds, and *G. cristata*, which appears immediately below Peake's Sponge Bed, were not present. This places the sample at or immediately above the lower sponge bed.

Based on field evidence, the Barrois Sponge Bed was suggested for this sample. If that interpretation is correct, it ties down the base of BGS 17iii (WILKINSON, 2000) more accurately. There is a slight discrepancy between the published inception of the index species in BAILEY et al. (1983) and HART et al. (1989). The first authors place the inception above the sponge bed and the second authors place the inception below the sponge bed. The inception of *Reussella szajnochae praecursor*, and the base of BGS 17iii, can now be lowered at least to the Barrois Sponge Bed.

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